

CLAIMS

1. A semiconductor component which is arranged in a semiconductor body, with at least one source zone and with at least one drain zone of in each case a first conductivity type, with at least one body zone of a second conductivity type arranged in each case between source zone and drain zone, and with at least one gate electrode insulated from the semiconductor body by means of an insulating layer, the insulating layer being a consolidated layer containing quantum dots.  
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2. A semiconductor component as claimed in Claim 1, characterized in that the consolidated insulating layer contains quantum dots embedded in a matrix of a dielectric material.  
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3. A semiconductor component as claimed in Claim 1, characterized in that the quantum dots contain a semiconductor material.  
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4. A semiconductor component as claimed in Claim 1, characterized in that the consolidated insulating layer 9 is a sintered layer.  
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5. A method of manufacturing a semiconductor component which is arranged in a semiconductor body, with at least one source zone and with at least one drain zone of in each case a first conductivity type, with at least one body zone of a second conductivity type arranged in each case between source zone and drain zone, and with at least one gate electrode insulated from the semiconductor body by means of a consolidated insulating layer containing quantum dots, in which method the consolidated insulating layer is produced by applying a suspension containing quantum dots to the semiconductor body and consolidating it.  
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6. A method as claimed in Claim 5, characterized in that consolidation of the insulating layer is effected by means of sintering.

7. A method as claimed in Claim 5, characterized in that the suspension additionally contains particles of a dielectric material, wherein the diameter of the particles of the dielectric material is smaller than the diameter of the quantum dots.